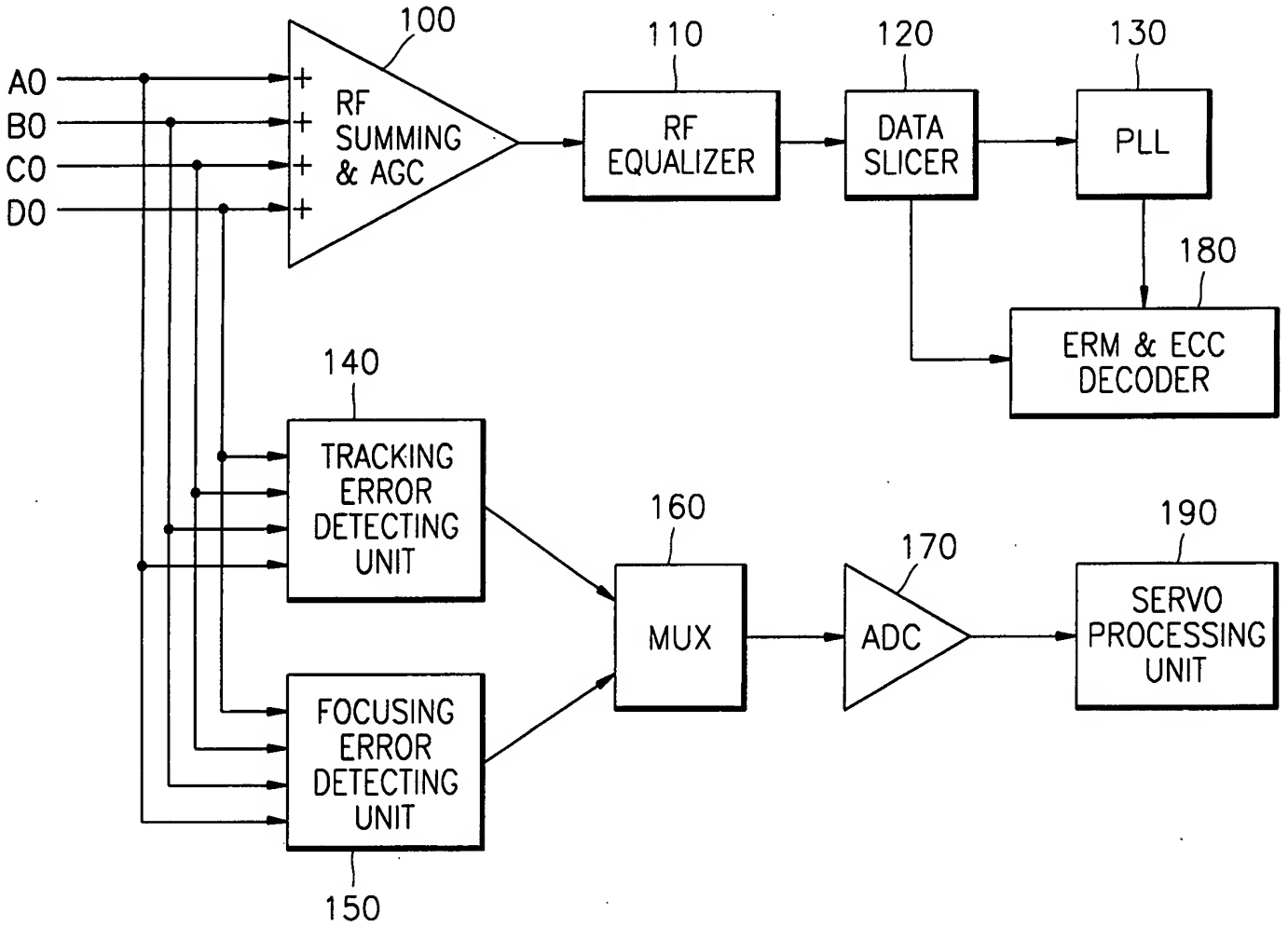
20120" E9009001

FIG. 1 (PRIOR ART)



20T220' E800E90T

FIG. 2

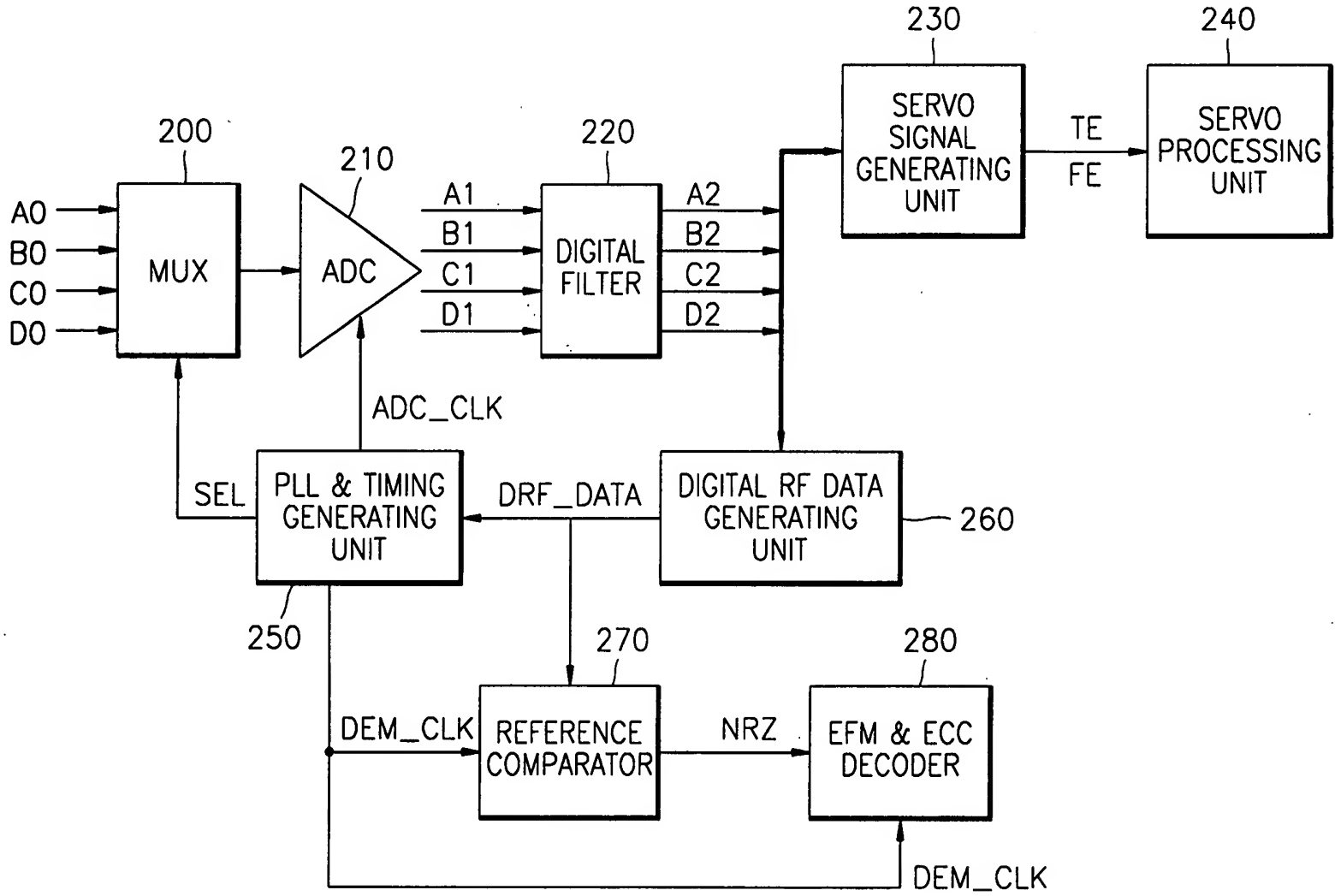


FIG. 3

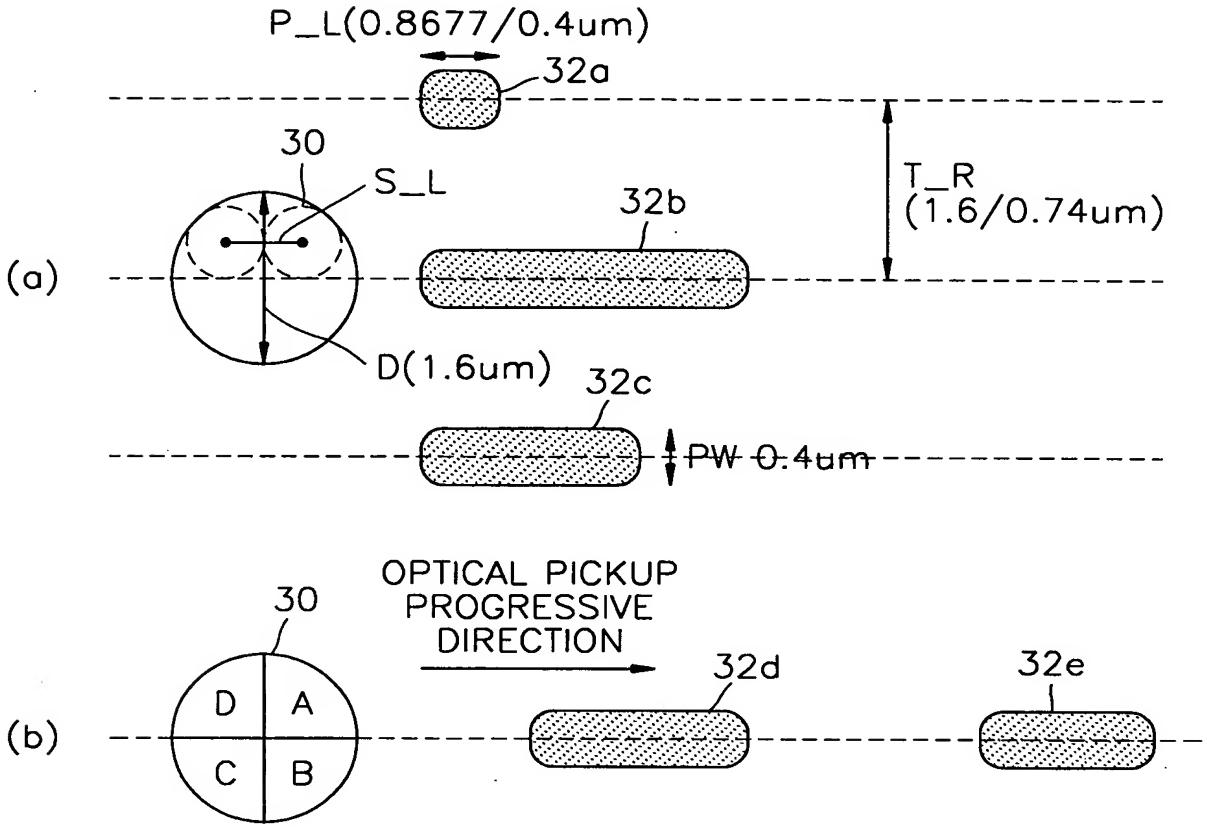

P_L(0.8677/0.4um)
32a
30
S_L
32b
T_R
(1.6/0.74um)
(a)
D(1.6um)
32c
PW 0.4um
OPTICAL PICKUP
PROGRESSIVE
DIRECTION
30
32d
32e
D
A
C
B
(b)

FIG. 4

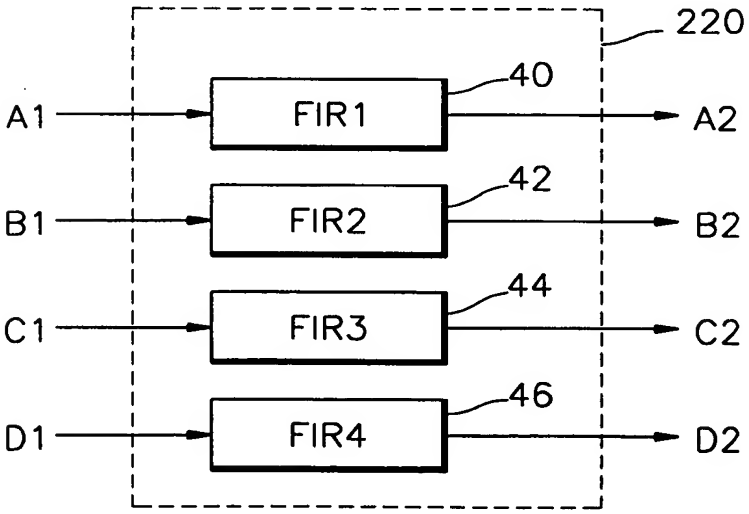

220
40
A1
FIR1
A2
42
B1
FIR2
B2
44
C1
FIR3
C2
46
D1
FIR4
D2

FIG. 5

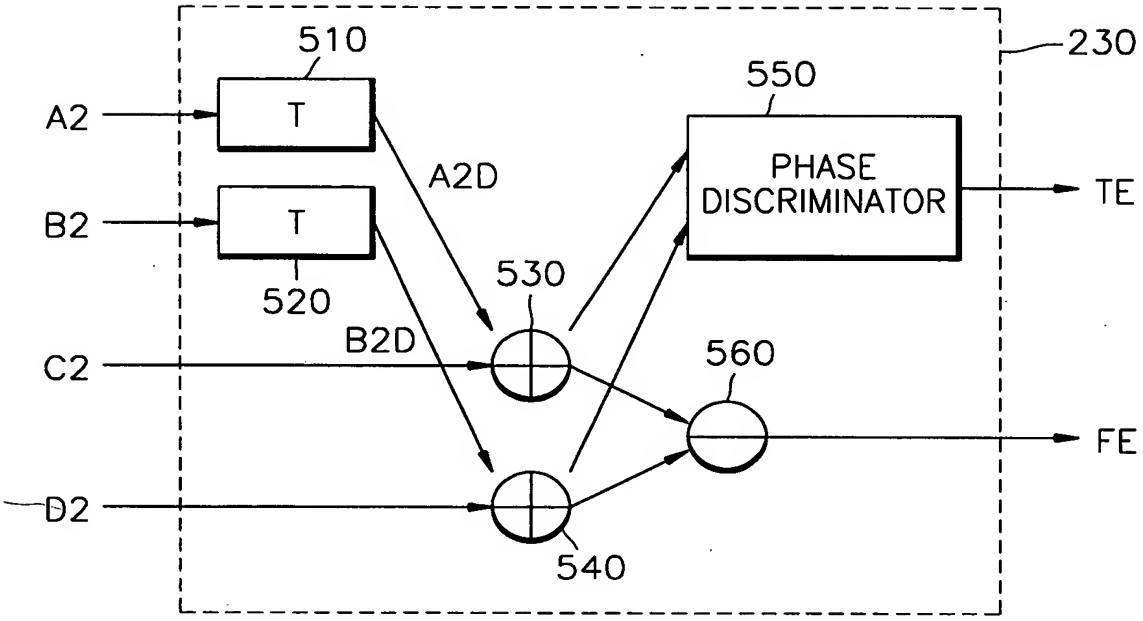
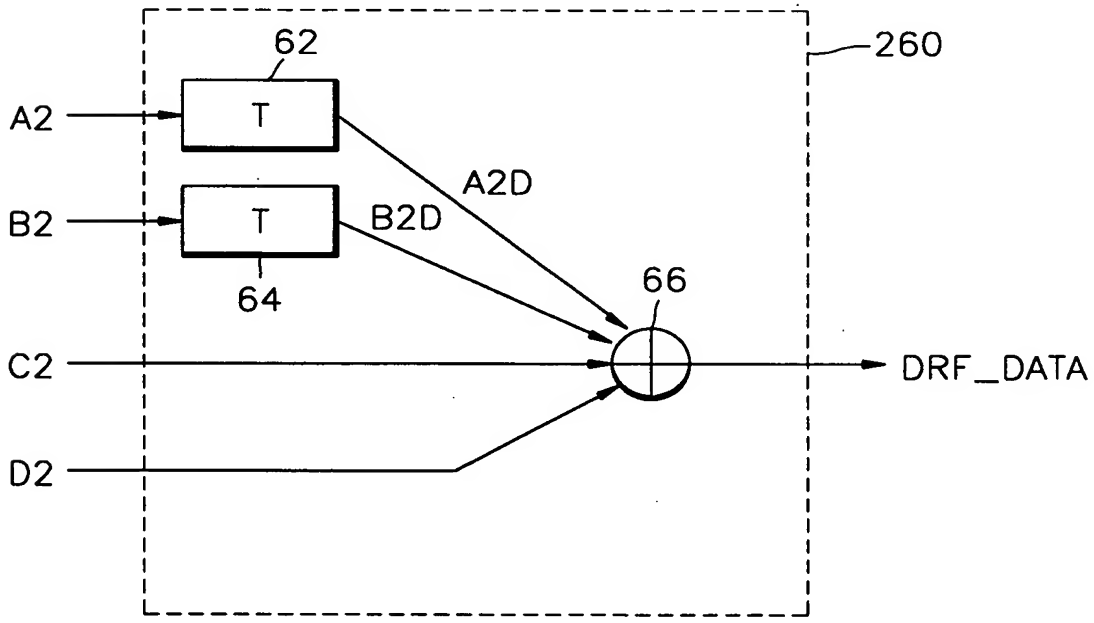


FIG. 6



FOCUS-ONE

FIG. 7

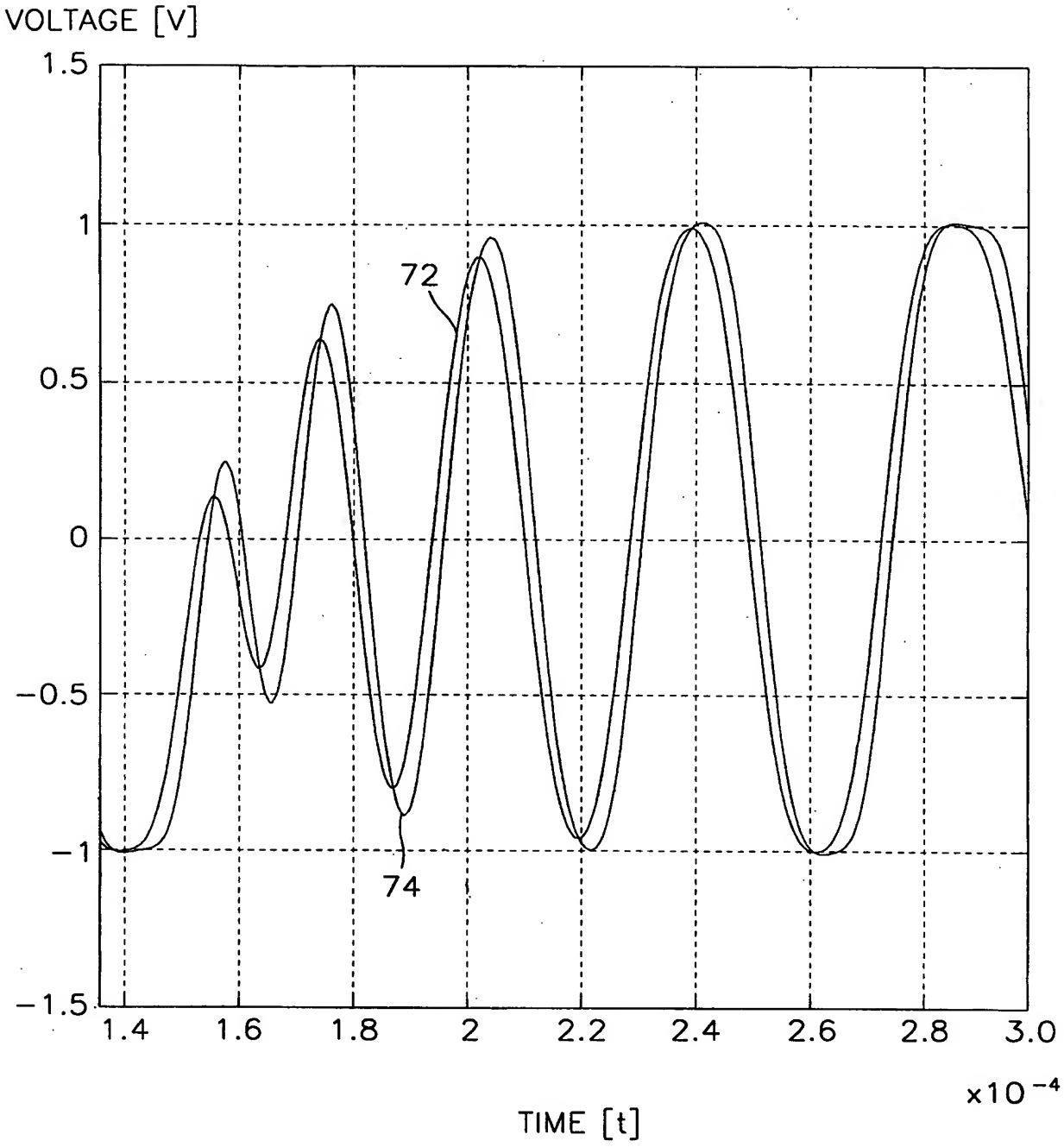


FIG. 8

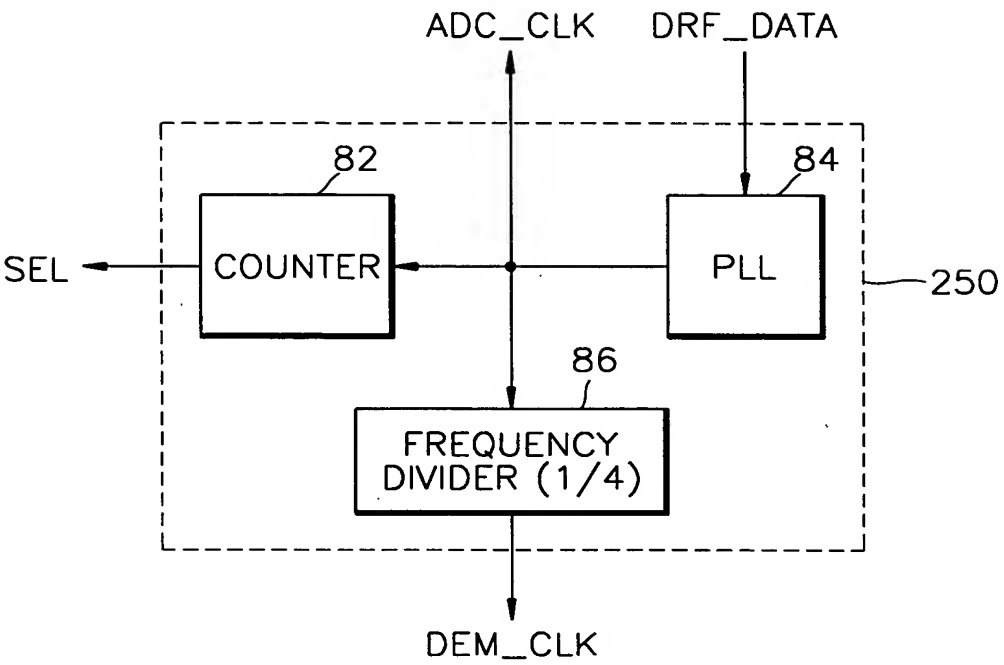


FIG. 9

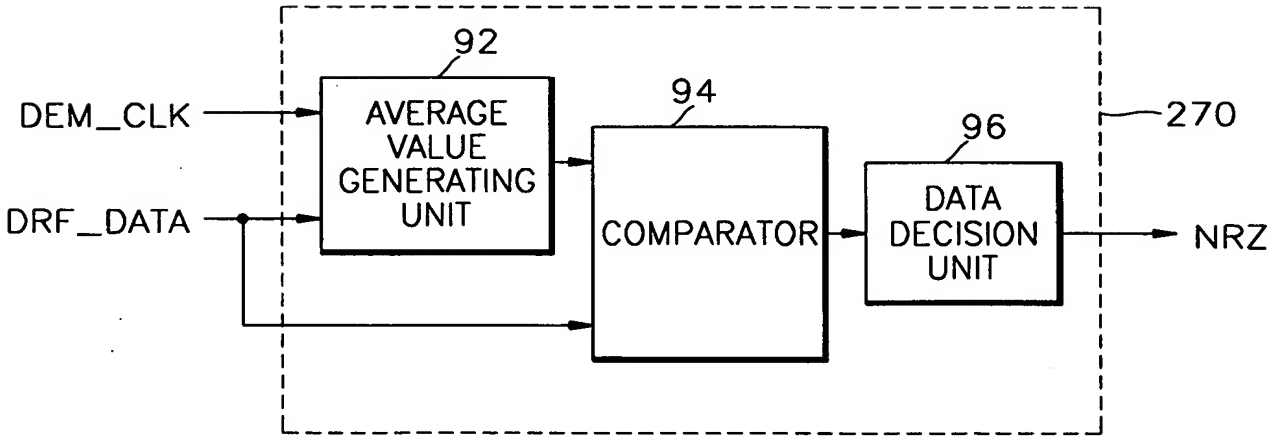


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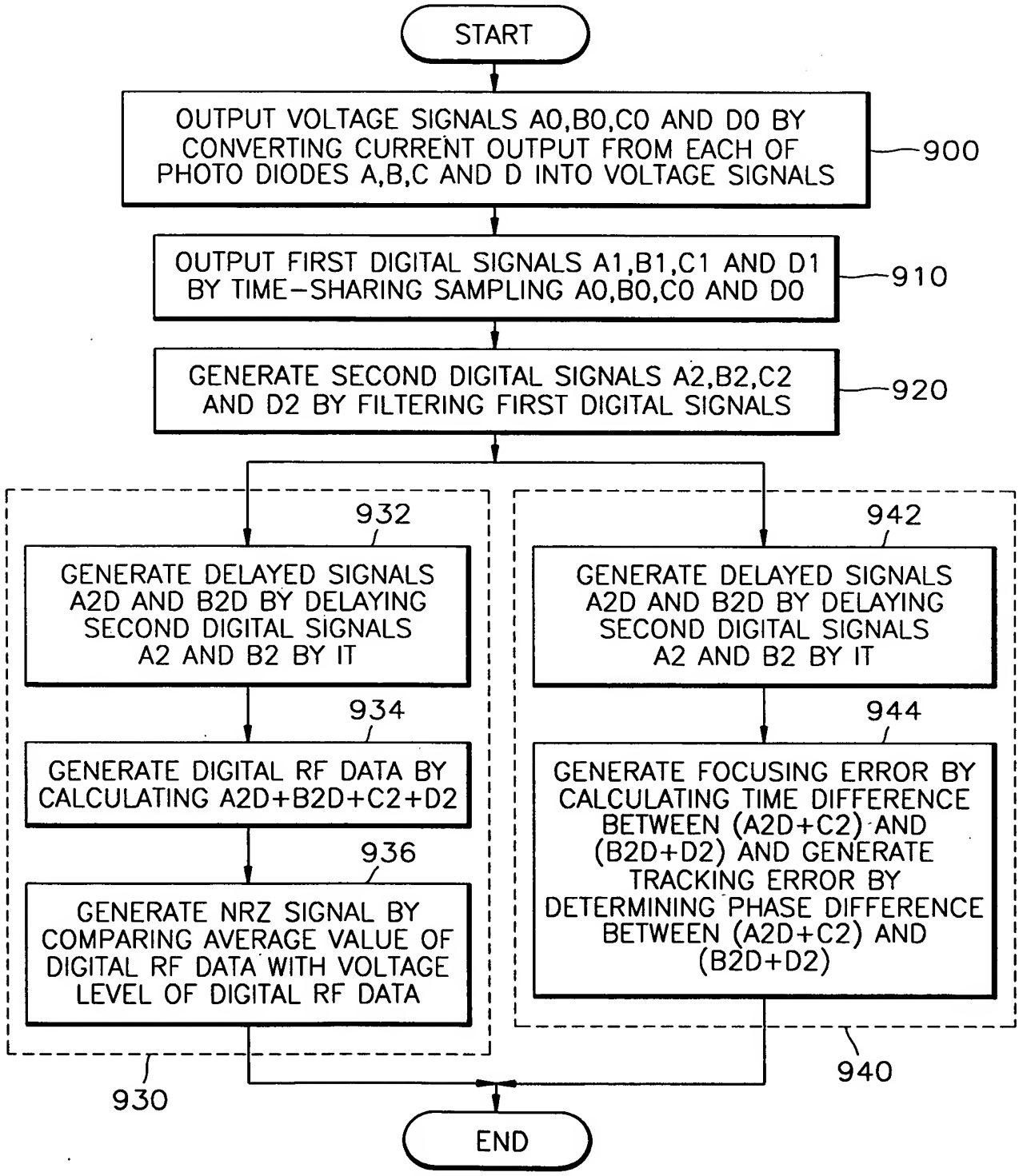
FIG. 10


START
OUTPUT VOLTAGE SIGNALS A0,B0,C0 AND D0 BY CONVERTING CURRENT OUTPUT FROM EACH OF PHOTO DIODES A,B,C AND D INTO VOLTAGE SIGNALS
900
OUTPUT FIRST DIGITAL SIGNALS A1,B1,C1 AND D1 BY TIME-SHARING SAMPLING A0,B0,C0 AND D0
910
GENERATE SECOND DIGITAL SIGNALS A2,B2,C2 AND D2 BY FILTERING FIRST DIGITAL SIGNALS
920
932
GENERATE DELAYED SIGNALS A2D AND B2D BY DELAYING SECOND DIGITAL SIGNALS A2 AND B2 BY IT
934
GENERATE DIGITAL RF DATA BY CALCULATING A2D+B2D+C2+D2
936
GENERATE NRZ SIGNAL BY COMPARING AVERAGE VALUE OF DIGITAL RF DATA WITH VOLTAGE LEVEL OF DIGITAL RF DATA
930
942
GENERATE DELAYED SIGNALS A2D AND B2D BY DELAYING SECOND DIGITAL SIGNALS A2 AND B2 BY IT
944
GENERATE FOCUSING ERROR BY CALCULATING TIME DIFFERENCE BETWEEN (A2D+C2) AND (B2D+D2) AND GENERATE TRACKING ERROR BY DETERMINING PHASE DIFFERENCE BETWEEN (A2D+C2) AND (B2D+D2)
940
END